

Appendix

Claims on Appeal:

1. A device for conditioning, cleaning, and/or keeping clean at least one of a rotating roll and a circulating belt of a paper machine, comprising:

two doctors arranged behind one another in a roll and/or belt travel direction and spaced at a distance from one another;

the two doctors being assigned to a rotating roll;

the rotating roll comprising grooves and/or blind bores;

one of the two doctors being a front doctor that scrapes water off of the rotating roll;

another of the two doctors being a rear doctor that scrapes air off of the rotating roll;

an additional doctor being assigned to at least one felt that is guided around the rotating roll, the additional doctor being arranged upstream and at a distance from a take-on point; and

a low pressure suction device located near the additional doctor,

wherein an underpressure is hydrodynamically produced by at least one of the front doctor and the rear doctor.

2. The device in accordance with claim 1, wherein said two doctors are located before the take-on point at which the at least one felt is guided onto the rotating roll.

3. The device in accordance with claim 2, wherein the additional doctor is a boundary layer doctor positioned adjacent said at least one felt before the take-on point.

4. The device in accordance with claim 3, wherein the low-pressure suction device is arranged for suctioning a wedge-shaped opening formed at least by the rotating roll and said at least one felt.

5. The device in accordance with claim 3, wherein the distance between said boundary layer doctor and the take-on point is less than approximately 500 mm.

6. The device in accordance with claim 5, wherein said distance is less than about 400 mm.

7. The device in accordance with claim 5, wherein said distance is less than approximately 300 mm.

8. The device in accordance with claim 1, further comprising:
a press arranged before the rotating roll,
wherein the low pressure suction device is arranged for suctioning a space between
said press and the rotating roll.

9. The device in accordance with claim 1, wherein the rotating roll comprises a
suction felt guidance roll.

10. The device in accordance with claim 9, further comprising a first press of a
pressing section of a paper machine,
wherein said suction felt guidance roll is provided subsequently to said first press.

11. The device in accordance with claim 10, wherein said first press comprises a roll
press.

12. The device in accordance with claim 10, wherein said first press comprises an
extended nip press.

13. The device in accordance with claim 10, further comprising a spray guard positioned between said suction felt guidance roll and said first press.

14. The device in accordance with claim 13, wherein said spray guard is arranged to extend substantially across a width of the machine.

15. The device in accordance with claim 1, further comprising at least one cleaning device acting on a surface of the rotating roll.

16. The device in accordance with claim 15, wherein said at least one cleaning device is positioned between said two doctors.

17. The device in accordance with claim 15, wherein said at least one cleaning device comprises at least one jet cleaning or spray device arranged to direct a pressurized medium at said surface.

18. The device in accordance with claim 17, wherein said pressurized medium comprises a fluid or air.

19. The device in accordance with claim 18, wherein said fluid comprises water.

20. The device in accordance with claim 15, wherein said at least one cleaning device comprises a combined blowing or spraying device and suction device.

21. The device in accordance with claim 15, wherein said at least one cleaning device comprises at least one rotatable spray head arranged to traverse crosswise to the travel

direction and arranged to rotate around an axis.

22. The device in accordance with claim 15, wherein said at least one cleaning device emits a medium onto said surface under a pressure that is greater than approximately 20 bar.

23. The device in accordance with claim 22, wherein said medium is under pressure less than about 30 bar.

24. The device in accordance with claim 22, wherein said medium is under pressure less than about 25 bar.

25. The device in accordance with claim 15, wherein said at least one cleaning device comprises a spray head which is rotatable around an axis, said spray head including at least one nozzle which is inclined relative to said axis.

26. The device in accordance with claim 25, further comprising a vapor suctioning device,

wherein said spray head is assigned to said vapor suctioning device.

27. The device in accordance with claim 15, further comprising a housing which is open to the rotating roll,

wherein said at least one cleaning device is enclosed and/or surrounded by said housing.

28. The device in accordance with claim 27, wherein said housing is sealed off from said surface by said two doctors.

29. The device in accordance with claim 1, wherein the rotating roll is arranged to form a pressing nip, and said device further comprises a unit for evening out an amount of water supplied to said pressing nip.

30. The device in accordance with claim 29, wherein said evening out unit comprises one of said two doctors.

31. The device in accordance with claim 30, wherein the front doctor is arranged in front of the rear doctor relative to the travel direction.

32. The device in accordance with claim 29, wherein said evening out unit comprises a blowing device for blowing out the grooves and/or the blind bores in said surface with a pressurized medium.

33. The device in accordance with claim 32, wherein said pressurized medium is pressurized air.

34. The device in accordance with claim 29, wherein said evening out unit includes a suction device for suctioning water out of said surface.

35. The device in accordance with claim 29, wherein said evening out unit includes a combined blowing and suction device.

38. The device in accordance with claim 1, wherein at least one of the front and rear doctors comprises a foil doctor arranged diagonally.

40. The device in accordance with claim 1, wherein the fibrous material web comprises a paper or a cardboard web.

41. The device in accordance with claim 40, further comprising a blowing device for blowing out the grooves and/or the blind bores with a pressurized medium.

42. The device in accordance with claim 41, wherein said pressurized medium comprises pressurized air.

43. The device in accordance with claim 40, further comprising a suction device for suctioning water out of the grooves and/or the blind bores.

44. The device in accordance with claim 40, further comprising a combined blowing and suction device.

48. A device for conditioning, cleaning, and/or keeping clean at least one of a rotating roll and a circulating belt of a paper machine, comprising:

at least two doctors arranged behind one another in a roll and/or belt travel direction and spaced at a distance from one another;

said at least two doctors being assigned to a rotating roll;

the rotating roll comprising grooves and/or blind bores;

one of the at least two doctors being a front doctor that scrapes water off of the rotating roll;

another of the at least two doctors being a rear doctor that scrapes air off of the rotating roll;

a housing that is open to the rotating roll;

a cleaning device arranged within the housing, wherein the cleaning device can impinge the roll surface with a medium under a pressure that is greater than approximately 20 bar and less than about 30 bar;

the front doctor being arranged on one edge of the housing and the rear doctor being arranged on another edge of the housing,

wherein an underpressure is hydrodynamically produced by at least one of the front doctor and the rear doctor.

49. A device for conditioning, cleaning, and/or keeping clean at least one of a rotating roll and a circulating belt of a paper machine, comprising:

at least two doctors arranged behind one another in a roll and/or belt travel direction and spaced at a distance from one another;

said at least two doctors being assigned to a suctioned rotating roll;

the suctioned rotating roll comprising grooves and/or blind bores;

one of the at least two doctors being a front doctor that scrapes water off of the rotating roll;

another of the at least two doctors being a rear doctor that scrapes air off of the rotating roll;

a housing that is open to the rotating roll;

a cleaning device arranged within the housing, wherein the cleaning device comprises a rotating spray head that can impinge the roll surface with a medium under a pressure that is greater than approximately 20 bar and less than about 30 bar;

the front doctor being arranged on one edge of the housing and the rear doctor being arranged on another edge of the housing,

wherein an underpressure is hydrodynamically produced by at least one of the front doctor and the rear doctor.

50. A device for conditioning, cleaning, and/or keeping clean at least one of a rotating roll and a circulating belt of a paper machine, comprising:

at least two doctors arranged behind one another in a roll and/or belt travel direction and spaced at a distance from one another;

said at least two doctors being assigned to a rotating roll;

the rotating roll comprising grooves and/or blind bores;

one of the at least two doctors being a front doctor that scrapes water off of the rotating roll;

another of the at least two doctors being a rear doctor that scrapes air off of the rotating roll;

a housing that is open to the rotating roll;

a cleaning device arranged in the housing for cleaning the rotating roll;

the cleaning device comprising a spray head with nozzles that can impinge the roll surface with a medium under a pressure that is greater than approximately 20 bar and less than about 30 bar;

the front doctor being arranged on one edge of the housing and the rear doctor being arranged on another edge of the housing,

wherein an underpressure is hydrodynamically produced by at least one of the front doctor and the rear doctor.